

## **ABSTRACT**

Garbage is material that is discarded as residue from industrial and household production. Another definition is objects that are no longer used by living things and become waste objects. Something that is produced from animals, plants, and even humans that are no longer used has the potential to become waste material. The remaining material can be in the form of liquid, solid, or gas which will later be discharged into nature.

Visible Light Communication (VLC) is a communication system using visible light as the transmission medium. The beginning of the development of this technology began with the widespread use of LED lights. Compared to other types of lamps, LEDs are more power efficient and have very high switching capabilities, making it possible to use them as short distance information transmitters. Communication using visible light enables the transmission of various types of information including digital data such as text and images.

With the problems around us regarding waste, we need a device that can sort waste automatically, whose data can be sent in real time. This device is an automatic sorting trash bin using an Inductive Proximity Sensor, a Capacitive Proximity Sensor and an Ultrasonic Sensor. a Capacitive Proximity Sensor and an Ultrasonic Sensor. Where there are two main sensors to detect the type of waste, namely Canned, Organic, Non-Organic. For data the height of the trash using an Ultrasonic sensor. All components are connected to the Arduino UNO board to send selection data and trash capacity to the LEDs on the NodeMCU. The automatic sorting bin that has been made can make it easier for the wider community to distinguish between types of waste or sort waste so that it can be used properly.

**keywords: Garbage, Visible Light Communication, LED, Automatic Garbage, Inductive Proximity, Capacitive Proximity.**